



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/001,688	10/25/2001	Theodore R. Sana	10010819-1	3172

7590 04/05/2004

AGILENT TECHNOLOGIES, INC.
Legal Department, DL429
Intellectual Property Administration
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER

TUNG, JOYCE

ART UNIT PAPER NUMBER

1637

DATE MAILED: 04/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/001,688	Applicant(s) SANA ET AL.	
	Examiner Joyce Tung	Art Unit 1637	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 15-19 is/are pending in the application.
- 4a) Of the above claim(s) 1-5 and 9-12 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 19 is/are allowed.
- 6) ☒ Claim(s) 6-8 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>1/16/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The applicant's response (filed 1/16/2004) to the Office Action has been entered. Claims 6-8 and 15-19 are pending.

1. Claims 6-8 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kourilsky et al. (Biochimie, 1971, Vol. 53, pg. 1111-1114) in view of Brenner (5,604,097, issued 2/18/1997).

Kourilsky et al. disclose DNA-DNA hybridization in the presence of urea at low temperature. The DNA is immobilized on filters (See pg. 1111, column 1, the Introduction). Kourilsky et al. also disclose the hybridization of the different sizes of lambda DNA in the presence of urea at low temperature, 40⁰C (See pg. 1112, fig. 1). Kourilsky et al. also concluded that DNA-DNA hybridization on filters in the presence of urea at lower temperature than their standard hybridization temperature could be used as routine technique (See pg. 1113, column 2).

Kourilsky et al. do not disclose that DNA is attached to the surface of a glass substrate.

Brenner discloses a method of tracking, identifying and sorting classes of molecules by the use of oligonucleotide tags. The tag is immobilized on the solid support, which comprises a wide variety of composition including glass (See column 12, lines 40-47).

One of the ordinary skill in the art at the time of instant invention would have been motivated to use glass as a solid support in the DNA-DNA hybridization method in the presence of urea at lower temperature than their standard hybridization temperature. Brenner states that when used in combination with solid phase supports such as microscopic beads, the invention provides a readily automated system and it is very useful in large-scale paralleled operations, such as sequencing or simultaneous analysis (See column 4, lines 43-49). It would have been

Art Unit: 1637

prima facie obvious to use glass to attach an oligonucleotide probe for hybridization at a temperature lower than their standard hybridization temperature in the presence of urea.

2. The response argues that in view of Kourilsk's doubt, one of skill in the art would have no expectation that Kourilsky's findings could readily be transferred to oligonucleotide methods and Kourilsky's warnings about selection against certain fragments and questionable reaction specificity would point one of skill in the art directly away from trying to lower the hybridization temperature of oligonucleotides using urea. However, Kourilsky et al. do not specifically indicate what size of the oligonucleotide, which cannot be used in the presence of urea to lower the hybridization temperature of the oligonucleotides. Moreover, as discussed in the Office action mailed 10/23/2003, it would have been common logic that shorter DNA would be more easily hybridized to other DNA strand in the presence of urea at lower temperature than longer DNA compared with its standard hybridization temperature. Based upon the study of Kourilsky et al. it appears that the hybridization of the smaller pieces of DNA is significantly taken place (See pg. 1113, column 1, second paragraph) in the presence of urea at lower temperature than their standard hybridization temperature.

The argument in the response filed 1/16/2004 has been fully considered, but it is not found persuasive. The rejection is maintained.

Summary

3. Claim 19 is allowable.

4. The following is a statement of reasons for the indication of allowable subject matter:

Concerning claim 19, no prior art has been found teaching or suggesting a method that allows a probe and target to hybridize at a temperature lower than their standard hybridization

Art Unit: 1637

temperature in which the probe and target are heated in the presence of acetamide.

Conclusion

5. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.


6. Any inquiries concerning this communication or earlier communications from the examiner should be directed to Joyce Tung whose telephone number is (571) 272-0790. The examiner can normally be reached on Monday-Friday from 8:00 AM-4:30 PM.

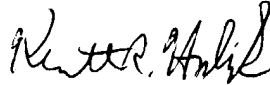
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gary Benzion can be reached at (571) 272-0782 on Monday-Friday from 10:00 AM-6:00 PM.

Any inquiries of a general nature or relating to the status of this application should be directed to the Chemical/Matrix receptionist whose telephone number is (703) 308-0196.

Art Unit: 1637

7. Papers related to this application may be submitted to Group 1600 by facsimile transmission. Papers should be faxed to Art Unit 1637 via the PTO Fax Center located in Crystal Mall 1 using (703) 305-3014 or 308-4242. The faxing of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989).

Joyce Tung 
March 29, 2004


KENNETH R. HORLICK, PH.D
PRIMARY EXAMINER

4/1/04